PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

BRITISH
COLUMBIA

Small Lake
Program Summary 1989-1992

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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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INTRODUCTION:

The primary goal of the small lakes program is to increase and diversify the angling opportunities within the Williston Watershed and nearby surrounding area. This is accomplished through the identification and implementation of viable fisheries enhancements, working within the context of the Provincial Fisheries Strategic Plan. Enhancements may take the form of sport fish introductions (hatchery or transplant), lake fertilization, lake aeration, chemical treatment, or habitat improvements (habitat complexing, barrier removal, artificial inlet or upwelling station creation etc.).

To achieve the primary goal of this program, various levels of investigation for individual lakes are required. These investigations identify enhancement opportunities that can be followed up in the future, and also create or add to Provincial and Regional lakes data bases. This information can then be utilized for resource management purposes.

The type of information collected by Compensation Program staff must meet standard Fisheries Branch requirements. The most detailed investigation undertaken is a Lake Inventory study. This involves assessment of physical, chemical, and biological characteristics of a lake and its immediate watershed. Another detailed research format is the Fisheries Evaluation study. These may be performed years after Lake Inventories have been completed and focus on the present fish population (wild or stocked). The potential exists to identify enhancement opportunities that were either not identified, not required at present, or not feasible at the time of the original survey. The third type of examination focuses on the specific enhancement potential of selected small lakes. This type of examination may take the form of a survey of an outlet or inlet stream, or a winter oxygen series, etc.

To date the Peace Fisheries Compensation Program has conducted 28 Lake Inventory studies and conducted 10 Fisheries Evaluation studies (1989-1992). In addition 20 other lakes have received less extensive study. (Figure 1)

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INTRODUCTION continued

Management decisions such as implementation of stocking programs, restrictive regulations etc. are the responsibility of B.C. Environment, Lands and Parks, Fisheries Branch. Results of these small lake investigations and recommendations made by the Compensation Program staff contribute to the development of management plans required of the Fisheries Branch.

The following brief summary highlights the information obtained for all 58 lakes investigated by the Peace Fisheries Compensation Program. Recommendations, and potential future enhancements are also presented with each lake.

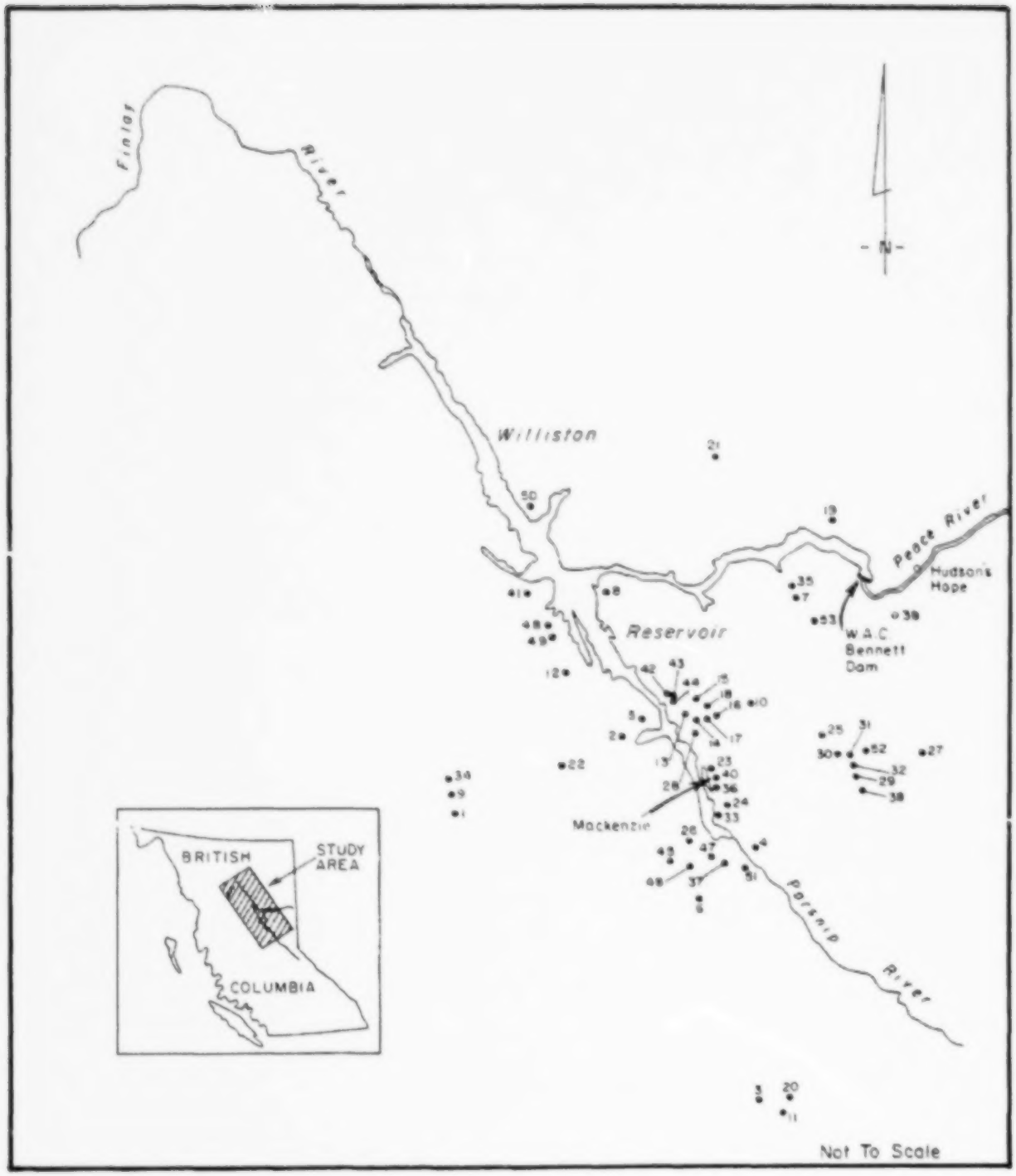

Figure I. Lake locations (approximate). Lakes have been identified by numbers which correspond to those provided in the accompanying text.

1) Albert Lake

- Identified as potential stocking candidate in 1990
- Stocked in 1990 (rainbow trout)
- Recommend Fisheries Evaluation study in 1994

2) Blackwater Lake

- Lake Inventory study conducted in 1990
- No enhancements identified
- Recommend continuance of monitoring and managing wild rainbow trout population
- Blackwater creek was used as a rainbow brood collection source for the once operational, Hudson's Hope Hatchery.

3) Boot Lake

- Outlet investigated for potential enhancements in 1992
- No enhancements identified

4) Bruce Lake

- Lake Inventory study conducted in 1989
- Stocked in 1989 (rainbow trout)
- Potential also exists brook trout introductions
- Recommend Fisheries Evaluation study in 1993
- As yet, no access

5) Burden Lake

- Fisheries Evaluation study conducted in 1991
- No enhancements identified
- Recommend collecting total angler effort and CPUE information
- Recommend Fisheries Evaluation study in 1994 or 1995

6) Butternut Lake

- Lake Inventory conducted in 1990
- Stocked in 1991 (rainbow trout)
- Recommend Fisheries Evaluation study in 1995
- Access created by B.C. forest Service in 1992
- Potential exists to dam outlet and create brook trout fishery
- Lake Rehabilitation possible should stocking program be unsuccessful (See report for details)

7) Carbon Lake

- Fisheries Evaluation study conducted in 1991/92
- Closed to ice fishing in 1991/92
- Recommend Public Awareness program; placement of lake trout life cycle and current population status signs
- Recommend tendering contract to investigate rainbow trout spawning location

8) Canty Lake

- Lake Inventory study conducted in 1989
- Winter oxygen data collected in 1989/90
- Stocked in 1990 (rainbow trout)
- Recommend Fisheries Evaluation study in 1994

9) Calais Lake

- Fisheries Evaluation study conducted in 1992.
- Evaluated for grayling transplant potential in 1992
- Suitable for a grayling transplant, however Little Calais Lake was selected

10) Clearwater Lake

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- Beaver dam removal possible on outlet
- Recommend continuance of monitoring and managing wild bull trout population

11) Crystal Lake

- Investigated in 1992 for the potential of creating an artificial spawning inlet
- Recommend Fisheries Evaluation study (in 1993) to determine the extent of the spawnbound condition
- If spawn bound condition present, artificial inlet creation possible in 1994

12) Curve Lake

- Lake Inventory study conducted in 1989
- Recommend yearly beaver dam removal contract in 1993
- Recommend continuance of monitoring and managing wild rainbow trout population

13) Dina Lake # 1

- Fisheries Evaluation study conducted in 1991
- Inlet enhancements:

1) Coarse fish barrier installation in 1992
2) New culvert installed at road crossing in 1992
3) Beaver dam breaching/maintenance in 1992 and 1993
4) Habitat complexing in 1992 and 1993
5) Permanent coarse fish barrier installation in 1993
6) "Beaver Stop" construction on culvert at road crossing in 1993

- Recommend Fisheries Evaluation study of inlet enhancement success (1996 or 1997) and it's impact on Dina Lake #1 fishery
- Recommend collecting total angling effort and CPUE information

14) Dina Lake # 2

- Fisheries Evaluation study conducted in 1991
- Recommend collecting total angler effort and CPUE information
- Recommend Fisheries Evaluation study in 1994 or 1995
- Investigate potential recreation site development (B.C. Forest Service)
- Dina L. # 2 outlet creek is same creek as Dina L. # 1 inlet
- Future enhancements of the outlet are planned

15) Dina Lake # 3

- Winter oxygen data collected in 1990/91 and 1991/92
- Lake Inventory study conducted in 1992
- Stocked in 1992 (rainbow trout)(with Mackenzie Fish and Game Club)
- Recommend gravel placement on inlet (scheduled for winter of 1994)
- Habitat complexing also recommended on inlet (with Mackenzie Fish and Game Club) in 1995
- Recommend Fisheries Evaluation study, and inlet enhancement success investigation (scheduled for 1996/97)

16) Dina Lake # 5

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- No enhancements identified

17) Dina Lake # 6

- Winter oxygen data collected in 1990/91
- Recommended for future Lake Inventory study

18) Dina Lake # 7

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- Stocked in 1992 (rainbow trout)(With Mackenzie Fish and Game Club)
- Recommend Fisheries Evaluation study (scheduled for 1996)
- Investigate recreation site development (B.C. Forest Service) in 1992

19) Dunlevy Lake

- Winter oxygen data collected in 1989/90
- Lake Inventory study conducted in 1989
- No enhancements identified (low oxygen)

20) Emerald Lake

- Investigated (1992) for the potential of constructing an artificial spawning inlet (not presently feasible)

21) Emerslund lakes (2)

- Recommended for future Lake Inventory study
- Known to support wild fish

22) Finger Lake

- Lake Inventory study conducted in 1990
- No enhancements identified
- Recommend continuance of monitoring and managing wild rainbow trout population
- Recommend identifying rainbow spawning location(s)

23) Gantahaz Lake

- Fisheries Evaluation study conducted in 1991
- Recommend maintaining current stocking program
- Spawning gravel placed near shoreline in 1992
- Winter creel survey conducted December 1992 - February 1993
- Recommend Fisheries Evaluation study (scheduled for 1996)

24) Gataiga Lake

- Lake Inventory study conducted in 1991
- No presently feasible enhancements identified
- Recommend continuance of monitoring and managing wild rainbow trout population

25) Grizzly Lake

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- Potential for rainbow trout transplant (scheduled for 1993) if suitable donor stock is identified
- B.C. Forest Service has expressed interest in providing trail access if lake is stocked

26) Grayling Lake

- Lake Inventory study conducted in 1990
- Recommend continuance of monitoring and managing wild rainbow stocks
- Recommend investigating the following in 1993:

1) Potential of beaver dam removal on outlet
2) Potential coarse fish barrier installation on outlet

- If feasible, carry out above enhancements

3) Potential of habitat complexing on inlet

27) Gwillum Lake

- Major Fisheries Evaluation study conducted in 1989/90, investigated potential for a walleye population
- Management plan to be developed in co-operation with B.C. Parks
- Wild fish management a priority

28) Heather Lake

- Lake Inventory study conducted in 1989
- Recommend implementation of a stocking program utilizing Blackwater Rainbow
- Stocked in 1992 (rainbow trout-Premier stock)
- Recommend Fisheries Evaluation study (scheduled for 1996)

29) Kelly Lake

- Winter oxygen data collected in 1991/92
- Lake Inventory study not warranted (shallow/low oxygen)

30) LeMoray Lake # 1

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- Potential for sportfish introduction (transplant) exists if suitable donor stock is identified
- Potential exists for spawning habitat improvements on inlet/outlets, pending possible access and fish introductions

Recommend investigating potential of recreation site development and trail creation (B.C. Forest Service)

31) LeMoray Lake # 2

- Winter oxygen data collected in 1991/92
- Lake Inventory study conducted in 1992
- Potential for sportfish introduction (transplant) exists if suitable donor stock is identified
- Potential exists for flow consolidation, stream clearance, and spawning habitat improvements on inlet #1, and spawning habitat improvement, and stream clearance on the outlet, pending possible access and fish introductions
- Recommend investigating potential of recreation site development and trail creation (B.C. Forest Service)

32) LeMoray Lake # 3

- Winter oxygen data collected in 1991/92
- Lake Inventory study conducted in 1992
- Potential for sportfish introduction (transplant) exists if suitable donor stock is identified
- Potential exists for flow consolidation, stream clearance and spawning habitat improvements on the outlet, and spawning habitat improvement on inlet #1, pending possible access and fish introductions

Recommend investigating potential of recreation site development and trail creation (B.C. Forest Service)

33) Lions Lake

- Fisheries Evaluation study conducted in 1989, primarily for rehabilitation potential
- Rehabilitation not feasible
- Recommend implementation of a stocking program utilizing Blackwater Rainbow
- Stocked in 1992 (rainbow trout-Premier stock)
- Outlet enhancements:

1) Beaver dam removal in 1990..
2) Bridge construction (Mack. Secondary School Forest Ed. Program) in 1990
3) Habitat complexing in 1991
4) Improvements to approach and bridge structure in 1991

- Assess success of habitat complexing in 1993
- Recommend Fisheries Evaluation study (scheduled for 1996)

34) Little Calais Lake

- Lake Inventory study conducted in 1992
- Winter oxygen data collected in 1991/92
- Assessed (1992) for capability of creating/supporting an Arctic Grayling "refuge" population
- Grayling transplanted in 1992 (Nation River donor stock)
- Second Grayling transplant scheduled for 1993
- Recommend assessment of transplant program (scheduled for 1995)

35) Little Carbon Lake

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- Recommend implementation of a rainbow trout stocking program (requested for 1993)
- B.C. Forest Service has expressed interest in providing trail access pending stocking

36) Lost Lake

- preliminary investigation of lake to identify potential enhancements.
- Recommended for future Lake Inventory study

37) McIntyre Lake

- Lake Inventory study conducted in 1989
- Outlet enhancements (pending access-1993?):

1) Beaver dam removal
2) Coarse fish barrier installation
3) Gravel placement

- Recommend continuance of monitoring and managing wild rainbow stocks

38) Michelle Lake

- Winter oxygen data collected in 1991/92
- Lake Inventory study conducted in 1992
- Potential for sportfish introduction (transplant) exists if suitable donor stock is identified
- Donor stock search tentatively scheduled for 1993
- Collect bathometry in 1993
- Inlet/outlet gravel placement possible, pending access
- Removal of vertical bedrock drop (0.38 m.) at lake outlet possible if access improved.
- B.C. Forest Service has expressed interest in providing trail access, pending fish introductions

39) Moberly Lake

- Major Fisheries Evaluation study conducted in 1989/90, investigated potential for a walleye population
- Inventoried inlet watershed in 1992
- Management plan to be developed in co-operation with West Moberly, Saulteau Indian bands, and other interested parties
- Wild fish management a priority

40) Morfee Lake

- Fisheries Evaluation study conducted in 1991/92
- Recommend Fisheries Evaluation study in 1994 or 1995
- Recommend stabilizing banks (on outlet) with existing material at outlet (scheduled for 1993)
- Recommend investigating Morfee L. outlet and Morfee C. to verify presence/absence of spawners and investigate enhancement potential
- Recommend collecting total angler effort and CPUE information

41) Muscovite Lakes # *1,2,3,4*

- Winter oxygen series collected in 1990/91
- Future Lake Inventories not presently under consideration

42) Pothole Lake # 1

- Fisheries Evaluation study/Inventory conducted in 1989
- Recommend maintaining current stocking program
- Potential exists for the construction of a small solar powered upwelling station, pending results from Windy Point Lake upwelling station

43) Pothole Lake # 2

- Winter oxygen data collected in 1991/92
- Lake Inventory study not feasible (low oxygen)

44) Pothole Lake # 3

- Winter oxygen data collected in 1991/92
- Lake Inventory study not feasible (low oxygen)

45) Robinson Lake

- Lake Inventory study conducted in 1989
- Recommend investigation (scheduled for 1993) into potential of replacing beaver dam at lake outlet with permanent water control structure and coarse fish barrier
- Recommend continuance of monitoring and managing wild rainbow stocks

46) Royer Lake

- Lake Inventory study conducted in 1989
- Recommend outlet habitat complexing, pending access (1993?)
- Recommend continuance of monitoring and managing wild rainbow stocks

47) Sabai Lake

- Fisheries Evaluation study conducted in 1990
- Stocked in 1991 (rainbow trout)
- Recommend Fisheries Evaluation study (scheduled for 1995)

48) Shoal Lake # 2

- Winter oxygen data collected in 1990/91
- Lake Inventory study conducted in 1991
- No enhancements identified

49) Shoal Lakes # 1,3

- Winter oxygen data collected in 1990/91
- Future Lake Inventories not presently under consideration

50) Tobin Lake

- Winter oxygen data collected in 1989/90
- Lake Inventory conducted in 1989
- Stocked in 1989 (rainbow trout)
- Recommend Fisheries Evaluation study (scheduled for 1993)

51) Windy Point Lake

- Lake Inventory study conducted in 1990
- Provided B.C. Forest Service with partial funding to create recreation site in 1992
- Upwelling station installation completed in 1992
- Recommend tendering a contract to operate upwelling station (pump) in 1993
- Assess success of upwelling station in 1993

52) Wolf Lake

- Winter oxygen data collected in 1990/91
- Recommended for future Lake Inventory study

53) Wright Lake

- Winter Oxygen data collected in 1990/91
- Lake Inventory study conducted in 1990
- Stocked in 1991 (rainbow trout)
- Recommend Fisheries Evaluation study (scheduled for 1995)
- Recreation site and trail access developed (B.C. Forest Service) in 1992
- Recommend investigating potential of (scheduled for 1993):

1) Excavating a deeper channel between main lake body and bay/marsh area to allow fish passage to outlet
2) Spawning gravel addition and habitat complexing on outlet